

## CLAIMS

What is claimed is:

- 1 1. A method for marking one or more packets of data in a packet-switched network  
2 based on achieved flow bandwidth information within the network, comprising the  
3 computer-implemented steps of:  
4 marking a first group of one or more packets of a data flow with a first behavioral  
5 treatment value, wherein the first behavioral treatment value directs  
6 devices within the network to treat the first group of one or more packets  
7 with a first quality of service treatment;  
8 determining an achieved flow bandwidth for the data flow based on data traffic  
9 within the network;  
10 determining a second behavioral treatment value based on the achieved flow  
11 bandwidth within the network; and  
12 marking a second group of one or more packets of said data flow with said second  
13 behavioral treatment value, wherein the second behavioral treatment value  
14 directs devices within the network to treat the second group of one or more  
15 packets with a second quality of service treatment.
- 1 2. The method as recited in Claim 1, wherein:  
2 the step of marking a first group of one or more packets includes the step of  
3 storing a first differentiated services codepoint (DSCP) value in each  
4 header of the first group of one or more packets of a data flow;  
5 the step of determining a second behavioral treatment value includes the step of  
6 determining a second DSCP value; and  
7 the step of marking a second group of one or more packets includes the step of  
8 storing the second DSCP value in each header of the second group of one  
9 or more packets of a data flow.

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- 1 3. The method as recited in Claim 1, further comprising the steps of:  
2 determining packet flow characteristics of the first group of one or more packets  
3 of a data flow; and  
4 determining the second behavioral treatment value based on the available  
5 bandwidth within the network and the packet flow characteristics of the  
6 first group of one or more packets of a data flow.
- 1 4. The method as recited in Claim 1, further comprising the steps of:  
2 establishing a Quality of Service (QoS) policy for applying a per-hop-behavior  
3 treatment for forwarding packets within a flow in said network; and  
4 generating the first behavioral treatment value based on the established QoS  
5 policy.
- 1 5. A computer-readable medium carrying one or more sequences of instructions for  
2 marking one or more packets of data in a packet-switched network based on  
3 achieved flow bandwidth information within the network, wherein execution of  
4 the one or more sequences of instructions by one or more processors causes the  
5 one or more processors to perform the steps of:  
6 marking a first group of one or more packets of a data flow with a first behavioral  
7 treatment value, wherein the first behavioral treatment value directs  
8 devices within the network to treat the first group of one or more packets  
9 with a first quality of service treatment;  
10 determining an achieved flow bandwidth for the data flow based on data traffic  
11 within the network;  
12 determining a second behavioral treatment value based on the achieved flow  
13 bandwidth within the network; and  
14 marking a second group of one or more packets of said data flow with said second  
15 behavioral treatment value, wherein the second behavioral treatment value

16 directs devices within the network to treat the second group of one or more  
17 packets with a second quality of service treatment.

1 6. The computer-readable medium as recited in Claim 5, wherein:  
2 the step of marking a first group of one or more packets includes the step of  
3 storing a first differentiated services codepoint (DSCP) value in each  
4 header of the first group of one or more packets of a data flow;  
5 the step of determining a second behavioral treatment value includes the step of  
6 determining a second DSCP value; and  
7 the step of marking a second group of one or more packets includes the step of  
8 storing the second DSCP value in each header of the second group of one  
9 or more packets of a data flow.

1 7. The computer-readable medium as recited in Claim 5, further comprising  
2 instructions for performing the steps of:  
3 determining packet flow characteristics of the first group of one or more packets  
4 of a data flow; and  
5 determining the second behavioral treatment value based on the available  
6 bandwidth within the network and the packet flow characteristics of the  
7 first group of one or more packets of a data flow.

1 8. The computer-readable medium as recited in Claim 5, further comprising  
2 instructions for performing the steps of:  
3 establishing a Quality of Service (QoS) policy for applying a per-hop-behavior  
4 treatment for forwarding packets within a flow in said network; and  
5 generating the first behavioral treatment value based on the established QoS  
6 policy.

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1 9. A computer apparatus comprising:  
2 a processor; and  
3 a memory coupled to the processor, the memory containing one or more sequences  
4 of instructions for marking one or more packets of data in a packet-  
5 switched network based on achieved flow bandwidth information within  
6 the network, wherein execution of the one or more sequences of  
7 instructions by the processor causes the processor to perform the steps of:  
8 marking a first group of one or more packets of a data flow with a first  
9 behavioral treatment value, wherein the first behavioral treatment  
10 value directs devices within the network to treat the first group of one  
11 or more packets with a first quality of service treatment;  
12 determining an achieved flow bandwidth for the data flow based on data  
13 traffic within the network;  
14 determining a second behavioral treatment value based on the achieved  
15 flow bandwidth within the network; and  
16 marking a second group of one or more packets of said data flow with said  
17 second behavioral treatment value, wherein the second behavioral  
18 treatment value directs devices within the network to treat the second  
19 group of one or more packets with a second quality of service  
20 treatment.

1 10. The computer apparatus as recited in Claim 9, wherein:  
2 the step of marking a first group of one or more packets includes the step of  
3 storing a first differentiated services codepoint (DSCP) value in each  
4 header of the first group of one or more packets of a data flow;  
5 the step of determining a second behavioral treatment value includes the step of  
6 determining a second DSCP value; and  
7 the step of marking a second group of one or more packets includes the step of  
8 storing the second DSCP value in each header of the second group of one  
9 or more packets of a data flow.

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1 11. The computer apparatus as recited in Claim 9, further comprising instructions for  
2 performing the steps of:  
3 determining packet flow characteristics of the first group of one or more packets  
4 of a data flow; and  
5 determining the second behavioral treatment value based on the available  
6 bandwidth within the network and the packet flow characteristics of the  
7 first group of one or more packets of a data flow.

1 12. The computer apparatus as recited in Claim 9, further comprising instructions for  
2 performing the steps of:  
3 establishing a Quality of Service (QoS) policy for applying a per-hop-behavior  
4 treatment for forwarding packets within a flow in said network; and  
5 generating the first behavioral treatment value based on the established QoS  
6 policy.

1 13. A network device configured for marking one or more packets of data in a packet-  
2 switched network based on achieved flow bandwidth information within the  
3 network, comprising:  
4 means for marking a first group of one or more packets of a data flow with a first  
5 behavioral treatment value, wherein the first behavioral treatment value  
6 directs devices within the network to treat the first group of one or more  
7 packets with a first quality of service treatment;  
8 means for determining an achieved flow bandwidth for the data flow based on data  
9 traffic within the network;  
10 means for determining a second behavioral treatment value based on the achieved  
11 flow bandwidth within the network; and  
12 means for marking a second group of one or more packets of said data flow with  
13 said second behavioral treatment value, wherein the second behavioral  
14 treatment value directs devices within the network to treat the second  
15 group of one or more packets with a second quality of service treatment.

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- 1 14. A method for marking one or more packets of data in a packet-switched network  
2 based on achieved flow bandwidth information within the network, comprising the  
3 computer-implemented steps of:  
4 causing one or more network devices to mark a first group of one or more packets  
5 of a data flow with a first behavioral treatment value, wherein the first  
6 behavioral treatment value directs devices within the network to treat the  
7 first group of one or more packets with a first quality of service treatment;  
8 determining an achieved flow bandwidth for the data flow based on data traffic  
9 within the network;  
10 determining a second behavioral treatment value based on the achieved flow  
11 bandwidth within the network; and  
12 causing one or more network devices to mark a second group of one or more  
13 packets of said data flow with said second behavioral treatment value,  
14 wherein the second behavioral treatment value directs devices within the  
15 network to treat the second group of one or more packets with a second  
16 quality of service treatment.

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